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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,632	01/06/2006	Kuninori Hirata	09792909-6556	3722
26263                      7590                      12/24/2009 SONNENSCHN NATH & ROSENTHAL LLP P.O. BOX 061080 WACKER DRIVE STATION, WILLIS TOWER CHICAGO, IL 60606-1080				
EXAMINER				
LAIOS, MARIA J				
ART UNIT		PAPER NUMBER		
1795				
MAIL DATE		DELIVERY MODE		
12/24/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/563,632

**Applicant(s)**

HIRATA, KUNINORI

**Examiner**

MARIA J. LAIOS

**Art Unit**

1795

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 14, 16-21, 30 and 31 is/are rejected.
- 7) ☒ Claim(s) 6-13 and 22-29 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/GS-08)  
Paper No(s)/Mail Date 20060106

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election of Group I in the reply filed on 1 October 2009 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claim 15 is withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 1 October 2009. Claims 1-14 and 16-31 are acted upon in this office action.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
4. Claims 1, 2, 14, 16, 17 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et al. (US 2004/0023083 A1).

As to claims 1 and 16, Yang et al. discloses a fuel cell system comprising a fuel cell (1) a load (2) for the fuel cell and the fuel cell receives information from the load through an electrical connection between the two and a control device (6) regulates the

flow rate of the air flow and hydrogen in accordance to the output of the fuel cell stack (Abstract). Although Yang does not explicitly disclose a cable that both sends power and receives data on the same cable it would have been obvious to one skilled in the art as is exemplified by Hill et al. (US 2003/0211797 A1). Hill discloses electronic devices (loads) maybe powered via power conductor by superimposing the data and signals on the power signal (Paragraph 50).

As to claim 2, Yang et al. discloses that the flow rate of air and hydrogen is adjusted to optimize the fuel cell system (Paragraph 10-abstract).

As to claim 17, Yang et al. discloses a control device for controlling the valves of the hydrogen (Figure 1) from the hydrogen tanks (41) to the fuel cell stack (1) and by controlling the amount of fuel the controller controls the amount of power is produced by the fuel cell.

As to claims 14 and, 30, Yang et al. does not disclose a sensor monitoring the amount of fuel remaining in canisters (41) however this is implied because the usages would be known to the operator of the fuel cell and also to the microprocessor which should know the amount of fuel remaining so as to not run out of fuel.

5. Claims 3-5, 18-21 and 31 rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et al. (US 2004/0023083 A1) as applied to claims 1, 2 above, and further in view of Freeman et al. (US 6,519,539 B1).

As to claims 3-5 and 18-21 and 31, Yang et al. discloses the fuel cell as is discussed above but does not disclose the power information is superimposed upon the

voltage signal flowing through the electric cable. Freeman et al. discloses a fuel cell in which an ac waveform or signal is superimposed on the dc current (col. 5 lines 46-47). Furthermore after calculations of the data collected the internal resistance of the fuel is determined (col. 6 lines 37-40). Since the signal sent is a waveform it would be implied that the information received by the fuel cell the information with a predetermined frequency. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to send a waveform through the connection cable of Yang et al. because Freeman teach a wavelength can be used to determine the internal resistance of the fuel cell. Although neither Yang nor Freeman et al. teach that the fuel cell outputs start instructions for the load it would be obvious to one of ordinary skill because when the fuel cell is operating it is capable of supplying power to the load.

#### ***Allowable Subject Matter***

6. Claims 6-13 and 22-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
7. The following is a statement of reasons for the indication of allowable subject matter: The closest prior art of record fails to disclose or suggest a predetermined transduction means attaché to the fuel cell power and the load as is described in the claims.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARIA J. LAIOS whose telephone number is (571)272-9808. The examiner can normally be reached on Monday - Thursday 10 am -7 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on 571-272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. J. L./  
Examiner, Art Unit 1795

/Dah-Wei D. Yuan/  
Supervisory Patent Examiner, Art Unit 1795